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46320 7590 06/25/2007 CAREY, RODRIGUEZ, GREENBERG & PAUL, LLP STEVEN M. GREENBERG 950 PENINSULA CORPORATE CIRCLE SUITE 3020 BOCA RATON, FL 33487			EXAMINER MEHRMANESH, ELMIRA	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/612,613  
Filing Date: July 1, 2003  
Appellant(s): DAVIS, DOUGLAS

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**Technology Center 2100**

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Scott D. Paul

For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed February 16, 2007 appealing from the Office action mailed September 20, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: The rejection of claims 1-2 under 35 USC § 101 has been withdrawn.

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection of claims 1-2 under 35 USC § 101 has been withdrawn.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

Doyle et al. (U.S. PGPUB No. 20040243915)

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-24 are rejected under 35 U.S.C. 102.

**Claim Objections**

Claim 1 is objected to because of the following informalities:

In claim 1, line 7, "removed" should be changed to --remove--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Doyle et al. (U.S. PGPUB No. 20040243915)

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As per claim 1, Doyle discloses a checkpoint processor (Fig. 1, element 170) configured for coupling to individual Web services through a Web services engine (Fig. 1), said checkpoint processor comprising:

- checkpoint logic (Fig. 1, element 170) programmed to store checkpoint data (Fig. 1, element 180) for the individual Web service instance invocations (Fig. 1, elements 130A, 130B)

- restart logic (Fig. 2, element 220) programmed to restore said stored checkpoint data (Fig. 2, element 230) to a replacement for failed ones of the individual Web service instance invocations (Fig. 2, elements 240A, 240B)

- cleanup logic programmed to removed (Page 3, paragraph [0036], lines 16-20 and page 4, paragraph [0045], lines 12-17) said stored checkpoint data for concluded, non-failed ones of the individual Web service instance invocations.

As per claim 2, Doyle discloses logic for identifying an asynchronous correlator for each one of the individual Web service instance invocations and for storing said asynchronous correlator in association with corresponding ones of said stored

checkpoint data (Page 3, paragraph [0036]).

As per claim 3, Doyle discloses a method for managing checkpoints in a Web application, the method comprising the steps of:

storing a state object for an invocation of a requesting Web service instance (Page 4, paragraph [0039], lines 11-15 and Fig. 2, elements 250A, 250B)

responsive to a failure in said Web service instance, restarting a replacement Web service instance and providing said state object to a replacement Web service instance for said requesting Web service instance (Page 4, paragraph [0039], lines 1-15).

As per claim 4, Doyle discloses storing step further comprises storing a unique identifier for said requesting Web service instance along with said stored state object (Fig. 3, elements 320, 330, and 350).

As per claim 5, Doyle discloses storing step further comprises the steps of:  
identifying an asynchronous correlator for said invocation (Page 4, paragraph [0039], lines 1-15 and Fig. 3, elements 320, 330, and 350) storing said identified asynchronous correlator along with said stored state object (Page 4, paragraph [0039], lines 1-15).

As per claim 6, Doyle discloses storing step comprises the steps of:

detecting a notable event in said Web service instance; and, responsive to said detection, storing a state object for an invocation of a requesting Web service instance (Page 4, paragraph [0039], lines 1-15).

As per claim 7 Doyle discloses storing step comprises the step of periodically storing a state object for an invocation of a requesting Web service instance (Page 3, paragraph [0036], lines 16-20).

As per claim 8, Doyle discloses step of providing further comprises the step of providing said unique identifier to said replacement Web service instance (Fig. 3, element 340).

As per claim 9, Doyle discloses step of providing further comprises the step of providing said asynchronous correlator to said replacement Web service instance (Fig. 3, element 340).

As per claim 10, Doyle discloses step of discarding said stored state object when said Web service invocation has completed said invocation nominally (Page 4, paragraph [0045], lines 12-17).

As per claim 11, Doyle discloses step of storing state data for a handler chain managing said Web service instance (Page 4, paragraph [0043]).

As per claim 12, Doyle discloses storing a residency indicator for said Web service instance invocation (Page 4, paragraph [0039], lines 11-15)

registering at least one selected event (Fig. 1, element 190) which when received causes an initiation of said restarting and providing steps (Fig. 3, element 380).

As per claim 13, Doyle discloses step of restarting comprises the steps of:  
determining whether an existing Web service instance can act as said replacement Web service instance (Page 2, paragraph [0019], lines 10-15).

and, if an existing Web service instance cannot be located which can act as said replacement Web service instance, instantiating a replacement Web service instance (Page 2, paragraph [0019], lines 15-18).

As per claim 14, Doyle discloses a machine readable storage having stored thereon a computer program for managing checkpoints in a Web application (Page 4, paragraph [0046]) the computer program comprising a routing set of instructions for causing the machine to perform the steps of (Pages 4-5, paragraph [0047])

storing a state object for an invocation of a requesting Web service instance (Page 4, paragraph [0039], lines 11-15 and Fig. 2, elements 250A, 250B)  
responsive to a failure in said Web service instance, restarting a replacement



Web service instance and providing said state object to a replacement Web service instance for said requesting Web service instance (Page 4, paragraph [0039], lines 1-15).

As per claim 15, Doyle discloses storing step further comprises storing a unique identifier for said requesting Web service instance along with said stored state object (Fig. 3, elements 320, 330, and 350).

As per claim 16, Doyle discloses storing step further comprises the steps of: identifying an asynchronous correlator for said invocation (Page 4, paragraph [0039], lines 1-15 and Fig. 3, elements 320, 330, and 350) storing said identified asynchronous correlator along with said stored state object (Page 4, paragraph [0039], lines 1-15).

As per claim 17, Doyle discloses storing step comprises the steps of: detecting a notable event in said Web service instance; and, responsive to said detection, storing a state object for an invocation of a requesting Web service instance (Page 4, paragraph [0039], lines 1-15).

As per claim 18, Doyle discloses storing step comprises the step of periodically storing a state object for an invocation of a requesting Web service instance (Page 3,

paragraph [0036], lines 16-20).

As per claim 19, Doyle discloses step of providing further comprises the step of providing said unique identifier to said replacement Web service instance (Fig. 3, element 340):

As per claim 20, Doyle discloses said step of providing further comprises the step of providing said asynchronous correlator to said replacement Web service instance (Fig. 3, element 340).

As per claim 21, Doyle discloses step of discarding said stored state object when said Web service invocation has completed said invocation nominally (Page 4, paragraph [0045], lines 12-17).

As per claim 22, Doyle discloses step of storing state data for a handler chain managing said Web service instance (Page 4, paragraph [0043]).

As per claim 23, Doyle discloses storing a residency indicator for said Web service instance invocation (Page 4, paragraph [0039], lines 11-15)

registering at least one selected event (Fig. 1, element 190) which when received causes an initiation of said restarting and providing steps (Fig. 3, element 380).

As per claim 24, Doyle discloses step of restarting comprises the steps of:  
determining whether an existing Web service instance can act as said  
replacement Web service instance (Page 2, paragraph [0019], lines 10-15).

and, if an existing Web service instance cannot be located which can act as said  
replacement Web service instance, instantiating a replacement Web service instance  
(Page 2, paragraph [0019], lines 15-18).

#### **(10) Response to Argument**

In view of the Appellant's arguments, the rejection of claims 1-2 under 35 USC §  
101 has been withdrawn.

#### **Checkpoint data vs. Optimization metrics**

As per claim 1, the Appellant argues that Doyle fails to teach the claimed "restore  
said stored checkpoint data to a replacement". The Examiner respectfully disagrees and  
would like to point out that according to the Microsoft ® Computer Dictionary,  
"checkpoint" is a file containing information that describes the state of the system  
(environment) at a particular time. Doyle's figure 1 shows a Grid Coordinator 150, which  
contains the Fail-over Logic 170 and a store of Optimization Metrics 180 (page 3,  
paragraph [0036], lines 1-4).

Doyle further discloses that the Optimization Metrics 180 can include a listing of  
various static and dynamic parameters and measurements associated with the  
operation of the individual service instances 130A, 130B (page 3, paragraph [0036],  
lines 4-7). Considering the definition of "checkpoint", it is apparent that, the **"listing of**

**various static and dynamic parameters and measurements associated with the operation of the individual service instances**" included in the aforementioned "Optimization Metrics" are identical to the claimed "checkpoint data" as they contain information that describes the state of the system/environment (i.e. individual service instances 130A, 130B) at a particular time.

Referring back to page 3, paragraph [0036], lines 1-4, wherein Doyle discloses, "In accordance with the present invention, both failover logic 170 and **a store of optimization metrics 180** can be included with the grid coordinator 150, either wholly or by association", and for the reasons stated above, Doyle clearly discloses storing checkpoint data (i.e. store of optimization metrics).

The Appellant argues that Doyle fails to teach, "restoring checkpoint data to a replacement for failed ones of the individual Web service instance invocations." The Examiner respectfully disagrees and would like to point out that to page 4, paragraph [0043], wherein Doyle discloses, "Beginning in block 310, a node failure can be detected within the grid coordinator. In block 320, each service instance residing within the failed node can be identified. In block 330, one or more replacement nodes can be further identified. **In block 340, the logged metrics for each of the service instances in the failed node can be retrieved.** Alternatively, for each instance of a service hosted in the failed node, **logged metrics for multiple instances across other nodes for the service can be retrieved so as to smooth anomalous events in any one instance of the service.** In any case, platform metrics for each of the identified replacement nodes can be identified in block 350."

Noting figure 2, Doyle discloses the optimization logic 220 initially can determine whether services 260A, 260C hosted within the failed node 210Y can be **wholly re-instantiated** in one of the identified replacement nodes 240A, 240B in a manner in which the services 260A, 260C **can continue to operate** at a performance level previously attained in the failed node 210Y (page 4, paragraph [0040], lines 1-7).

As stated above, Doyle's failover process includes detecting the faulty node and providing continuous operation of the failed service instances by retrieving the checkpoint data (i.e. logged metrics) of the failed service instances to enable their full resumption in the replacement nodes based upon the collected metrics (page 2, paragraph [0012]). In order to maintain the **continuous operations** of the failed service instances and to **fully re-instantiate** the failed service instances, it is essential to **provide the previously stored checkpoint data** in the replacement invocations (i.e. **restore the checkpoint data**) to enable restarting of the service instances from the previously stored state of their operations prior to the failure. Therefore Doyle discloses restoring checkpoint data to a replacement for failed ones of the service instance invocations.

The Appellant argues that Doyle fails to teach the "cleanup logic". The Examiner respectfully disagrees and would like to point out to figure 1, and page 3, paragraph [0024], lines 7-10, wherein Doyle discloses, "each of the grid hosts 120A, 120B can be viewed as a host node in which **Web services can be instantiated, maintained and destroyed.**"

Doyle discloses of lifetime management of the Web services on page 3, paragraphs [0025] through [0028]. Doyle further discloses of the dynamic storing of the collected metrics "the metrics can be logged dynamically during the operation of each service. Thus, it is expected that the metrics will change over time." (page 2, paragraph [0020], lines 11-14). Doyle also discloses that the data in the store optimization metrics 180 can be regularly updated (page 3, paragraph [0036], lines 16-20).

The Examiner would like to provide the definition of "update" for clarification purposes. According to the Microsoft® Computer Dictionary, "update" is to change a system of a data file to make it more current.

The present application's specification, on page 3, paragraph [0006], lines 4-6 states "Moreover, while Web services alone address discovery and invocation of persistent services, grid services support transient service instances which can be created and destroyed dynamically."

The Appellant argues that Doyle fails to teach the cleanup and the removing of the stored checkpoint data for concluded service instances. The Examiner respectfully disagrees and states that to the contrary, Doyle's dynamic lifetime management of service instances and the dynamic metrics storage necessitates the cleanup and the removing of the stored checkpoint data for concluded service instances. As stated above Doyle discloses the change of the stored metrics due to the fact that Web services can be instantiated, maintained and destroyed dynamically.

In light of the specification with respect to the dynamic lifetime management of the service instances and Doyle's dynamic metrics storage of the collected metrics as a

part of the above dynamic lifetime management of the service instances (i.e. keeping track of the status of the service instances), it would be apparent that the regular updating (refer to the above provided definition) of the stored metrics (i.e. checkpoint data) would keep track of the status of the service instances (i.e. instantiated, maintained, destroyed) by overwriting (i.e. removing) the older non-useable data (i.e. data relating to the concluded service instances) to enable the failover process to provide the continuous operation and to fully re-instantiate the failed service instances as disclosed by Doyle. Therefore Doyle discloses the cleanup and the removing of the stored checkpoint data for concluded service instances.

As per claims 3 and 14, the Appellant argues that Doyle does not teach the claimed "storing a state object" and providing said state object to a replacement Web service instance". The Examiner respectfully disagrees and states that the state object of a service instance provides information that describes the state of the service instance, which can be used in a failover system. Doyle's figure 1 shows a Grid Coordinator 150, which contains the Fail-over Logic 170 and a store of Optimization Metrics 180 (page 3, paragraph [0036], lines 1-4).

Doyle discloses that the Optimization Metrics 180 can include a listing of various static and dynamic parameters and measurements associated with the operation of the individual service instances 130A, 130B (page 3, paragraph [0036], lines 4-7). Doyle further discloses of the dynamic storing of the collected metrics "the metrics can be logged dynamically during the operation of each service. Thus, it is expected that the metrics will change over time." (page 2, paragraph [0020], lines 11-14). Therefore, the

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stored metrics as disclosed by Doyle can include a dynamically specified state of the service instances (i.e. state object).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Elmira Mehrmanesh

Conferees:

Robert Beausoliel 

Scott Baderman 

  
SCOTT BADERMAN  
SUPERVISORY PATENT EXAMINER